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ABSTRACT

The final report of a 3-year project emphasizes program activities concerned with the development of an interdisciplinary program to train doctoral candidates to apply instructional technology (including computer application, educational programing and stimulation, and research and development techniques) to special education problems. (It is noted that previous reports for 1970-71 and 1971-72 contained detailed information on multimedia instructional programs and the dissemination of information and materials about applying instructional technology to personnel training.) Included is information on admission requirements; candidates admitted; a training model (with major phases of experience/skill and application/integration); and program components (such as special education major, instructional technology minor, internship, and research and development dissertation). Products available for dissemination to school districts, community agencies, and other universities are listed. Also given are titles, authors, and abstracts of five research and four training papers, as well as project progress reports and information about publication of the research and training reports. The location and use of physical facilities is described, equipment is listed, and appendixes are included which give course descriptions and sample flyers advertising the interdisciplinary program. (LH)

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Project No. 541346
Grant No. OEG-0-70-3400(603)

Instructional Technology Training Program in Special Education

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August 1973

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Introduction

This is the final report for the Project No. 541346. The project was funded for three years. The federal funding was $170,000 for the three year period (1970-71, 1971-72, 1972-73). Two thirds of the funds were supplied by Special Project funds and one third from Media and Captioned Film funds from the Bureau of Education of the Handicapped, Office of Education, U.S. Department of Health, Education, and Welfare.

The federal funding listed above expired August 30, 1973. The project has continued to operate with funds from Utah State University and training support funds from the Bureau for Education of the Handicapped. There is a strong University commitment to the project and no plans exist to limit the scope and objectives of the project.

Reports for 1970-71 and 1971-72

The first two objectives (page 3) were reported on in detail in the reports of the first two years. The content of these reports can be summarized as follows:

(1) 1970-71 - 1st quarterly report

(a) Preparation of multi-media training programs (inservice, preservice, and community programs)

(b) Dissemination (workshops, cooperative projects)

(c) Interdisciplinary graduate program (selection of fellows, program content, associated training experiences)

(2) 1970-71 - 2nd quarterly report

(a) Medical Syndromes of Mental Retardation - Field Test I (field test objectives, participants, achievement of specific

instructional objectives, participant questionnaire data, modifications planned)

(b) Update on parent training and micro-teaching

(3) 1970-71 - 3rd quarterly report

(a) Medical Syndromes of Mental Retardation - Field Test II (field test objectives, participants, specific instructional objectives, participant questionnaire data, item analysis of responses)

(b) Parent Training Program (individual unit objectives, program evaluation by parents, subjects, status of data collection)

(4) 1970-71 - 4th quarterly report

(a) Medical Syndromes of Mental Retardation - Field Test III (data: test III of unit I; data: test I of unit II; data: retention test of unit II)

(b) Parent Training Program (information release)

(5) 1970-71 - Interim Report

(a) Inservice training (micro-teaching, components of the minicourse, the minicourse in special education, objectives and hypotheses, procedure, population, treatment, data and instrumentation)

(b) Preservice training (multimedia program, formative and summative evaluation procedures, models of preservice training, linear model, modular model, criterion referenced evaluation, instructional procedures, components, evaluation procedures)

(c) Dissemination (publications, presentations, workshops, cooperative projects)

(6) 1971-72 - Interim Report

Part I

(a) University training program
(b) Research simulation
(c) Audio-tutorial programming
(d) Community training programs

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(e) Dissemination of products
(f) Dissemination of information
(g) Evaluation

Part II - Instructional Technology in Inservice Training (introduction, statement of the problem, purpose, objectives, review of the literature, procedures, design, results, discussion, conclusions and recommendations)

Project Objectives

(1) To prepare and validate multi-media instructional programs for use in the following areas:

(a) In-service training programs for personnel working with exceptional children. This will also include University extension programs.

(b) University undergraduate and graduate training programs for training personnel working with exceptional children.

(c) Community training programs. Included will be training programs for parents of exceptional children and volunteers engaged in projects involving the treatment of exceptional children.

(2) To facilitate the dissemination of information and materials concerned with the application of instructional technology to the training of personnel (including parents) involved with the treatment of exceptional children.

(3) To provide an interdisciplinary training program which prepares graduate students in one specific area of exceptionality and in instructional technology.

Organization of the Report

The reports for the 1970-71 and 1971-72 years emphasized the first two objectives listed above. Consequently, this report will place a major emphasis on the third objective, namely, the development of the interdisciplinary training program in special education and instructional technology.

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The Interdisciplinary Doctoral Training Program in Special Education and Instructional Technology

Program Overview

(I.)	Major in Special Education	45 quarter hours
(II.)	Minor in Instructional Technology	30 quarter hours
(III.)	Cross campus and elective courses	30 quarter hours
(IV.)	Research	30 quarter hours
	TOTAL	135 quarter hours

The quarter hour requirements are the suggested minimum requirements in the respective areas.

Admission Requirements

The following are the major admission requirements:

(1) Acceptable score on the Miller's Analogy (50%ile) or Graduate Record Examination

(2) Letters of recommendation

(3) The filing of a letter of intent

(4) A minimum of 2 years field experience with exceptional children

Eight candidates have been admitted to the program since receipt of the B.E.H. grant for the 1970-71 year. Four have completed their degrees and four are presently in residence. All of the candidates have entered with a master's degree. The average time taken to complete a degree has been two academic years and a summer. To date all candidates have stayed in residence until the degree has been completed. Four other candidates without B.E.H.

fellowships or assistantships have participated in parts of the program particularly in the internship and R & D dissertation components. These students were supported from private or other university sources. The listing below contains only those candidates completing the total program and receiving B. E. H. fellowships or assistantships.

Candidates Admitted

The candidates admitted to the program to date are as follows:

	Entering Degree	Year Admitted	Present Status
(1) Glenn Latham	M.S. U. of Utah	70-71	Asst. Professor U. of Oregon
(2) Joseph Stowitschek	M.S. Oregon College of Ed.	70-71	Asst. Professor George Peabody
(3) Harold Thorpe	M.S. U. of Wisconsin	71-72	Asst. Professor U. of Wisconsin
(4) Ken Reavis	M.S. U. of Oregon	71-72	Asst. Professor U. of West Virginia
(5) Tina Rosen	M.A. U. of Minnesota	72-73	in program
(6) Julie Landeen	M.S. U. of Kansas	72-73	in program
(7) Charles Atkinson	M.Ed. Central Wash. State College	72-73	in program
(8) Corinne Crutcher	M.Ed. Idaho State University	72-73	in program

The average length of field experience with exceptional children for the above candidates was six years. The affirmative action summary data for the above candidates are: males, 5; females, 3; minority group member, 1.

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The interdisciplinary program is advertized nationally (see Appendix B for examples of flyers used in the national advertizing). Most of the candidates admitted have met admission requirements for other doctoral programs and several were offered assistantship or fellowships in other programs.

The Interdisciplinary Training Model

The training model (see figure 1) has two major phases, an experience and skill development phase and an application and integration phase. The overall purpose of the training project is to train doctoral level persons who can apply instructional technology to special education problems. Given unlimited resources and staff, the ideal interdisciplinary program would take persons of varied background and experience. Such a procedure would require a massive variety of training resources and for this reason the program usually restricts its admissions to competent persons with a master's in special education and considerable field experience with exceptional children. This admission process combined with the existing training resources in special education and research (see figure 1) meant that the program development for the last three years could be focused on the organization of: (a) the instructional technology minor, (b) the interdisciplinary internship, and (c) the "R and D" dissertation. The following program description will emphasize the latter three components.

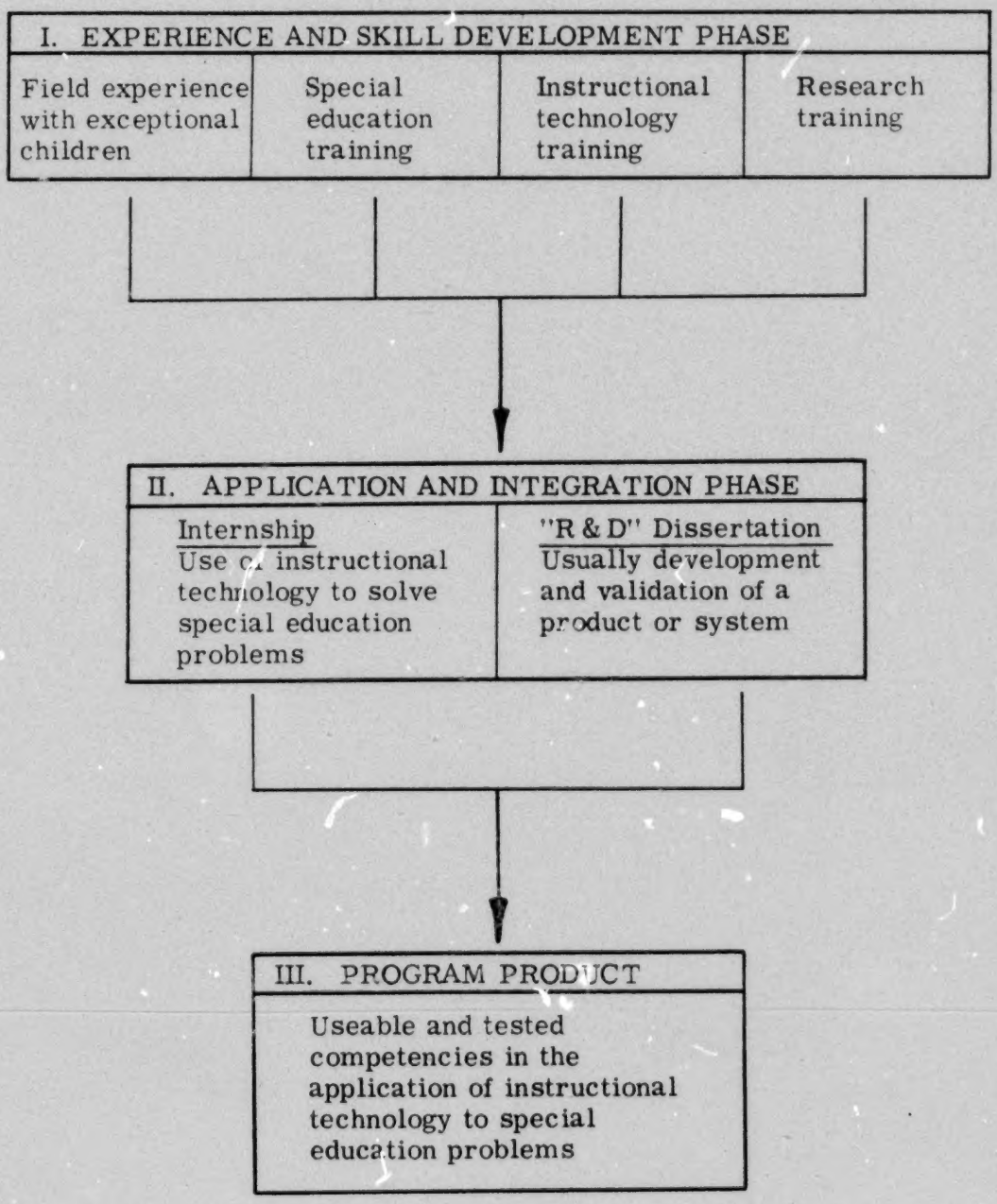
Program Components

(I) Major in Special Education

In this component the candidate may take an emphasis in either (1) Mental retardation, (2) Emotional disturbance, (3) Hearing disabilities,

Figure 1

THE INTERDISCIPLINARY MODEL


I. EXPERIENCE AND SKILL DEVELOPMENT PHASE
Field experience with exceptional children
Special education training
Instructional technology training
Research training
II. APPLICATION AND INTEGRATION PHASE
Internship
Use of instructional technology to solve special education problems
"R & D" Dissertation
Usually development and validation of a product or system
III. PROGRAM PRODUCT
Useable and tested competencies in the application of instructional technology to special education problems

(4) Culturally different, or (5) interrelated. The latter area was introduced for those candidates whose interests were spread across more than one category or who were involved in a non-categorical research study.

(II) Minor in Instructional Technology

While the introduction of the interdisciplinary training program requires little change to the major in special education, the minor in instructional technology had to be developed and coordinated from the offering of three departments namely Instructional Media, Psychology, and Computer Science. It was intended that the courses of the minor area, the interdisciplinary internship, and the research component would insure that the candidate graduated with master's level proficiency in instructional technology.

The minor in instructional technology includes the following areas:

1. Instructional media and systems theory	15 hours (Instructional Media Dept.)
2. Programmed learning and learning theory	6 hours (Psychology Dept.)
3. Computer science	9 hours (Computer Science Dept.)

A detailed listing of courses which make up the above areas is given in Appendix A. Appendix A also contains examples of the typical combinations of course work taken by candidates. The course work listed represents the offerings as they exist for the 1973-74 year.

(III) The Internship

The basic purpose of the internship is to provide an opportunity for the candidate to apply instructional technology skills to special education problems.

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Because the candidate needs to develop a repertoire of instructional technology skills before entering into the internship, the internship should occur during the last year of the program.

The candidate enrolls for 12 hours of credit and is required to complete a production project related to each of the following media or programming techniques:

(a) Super 8 mm or 16 mm movie	(2 credits)
(b) Slide-sound single or multi screen	(2 credits)
(c) T. V. program preparation	(2 credits)
(d) Linear or branching printed program	(2 credits)
(e) PERT programming	(1 credit)
(f) Programmable calculator or mini-computer	(1 credit)
(g) Computer assisted instruction or testing	(2 credits)

Project Reviewing and Grading

Each of the internship projects is reviewed and graded by an interdisciplinary faculty team including one faculty member from the department of Instructional Media and one from the department of Special Education. The projected team for the 1973-74 year is as follows: (1) Dr. Donald Smellie, Department Head, Instructional Media; (2) Dr. Michael DeBloois, Division of Learning Resources; and (3) Dr. Alan Hofmeister, Special Education Department. The credit for the 12 hour internship is divided between the departments of Instructional Media and Special Education.

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Off-Campus Internship

The project has had a cooperative internship arrangement with the Northwest Regional Special Education Instructional Materials Center (NWRSEIMC) at the University of Oregon. Under this cooperative arrangement some candidates have spent a month in the NWRSEIMC applying their instructional technology skills to problems identified by the Center staff. The products or programs developed by the interns are evaluated by the NWRSEIMC staff. The majority of the costs are borne by NWRSEIMC. Harold Thorpe and Ken Reavis participated in an internship in 1972. Tina Rosen and Charles Atkinson are scheduled for internship in June 1974. An evaluation of the Reavis and Thorpe internships can be found in the 1971-72 interim report.

(IV) The R & D Dissertation

Higgins[1], in a report on employment patterns of new education doctorates notes that, "An increasing number of our manpower resources have been committed to R & D in the last few years in many doctoral areas". The field of special education is representative of this trend. There exists a need for doctoral level persons with the skill to guide the development and validation of programs and products both at the classroom and teacher training levels.

A major purpose of the development of the interdisciplinary program in special education was to prepare personnel who fill that need.

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[1]Higgins, A.S. Recent employment patterns of new education doctorates. Educational Researcher, 1973, 2, 10, 9-13.

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The R & D dissertation model was developed as an integral part of the interdisciplinary training program to provide (1) an opportunity for the candidate to apply his skills in instructional technology, and (2) to provide feedback as to the effectiveness of the course work and internship experiences in equipping candidates with practical skills in the area of product and program development.

The Model

The procedures used in the dissertation are taken from or combine three approaches to research and development.

(1) The programmed development model[2] which originated from the field of programmed learning.

(2) The curriculum development model which uses the constructs of formative and summative evaluation described by Scriven.[3]

(3) The Far West Lab R & D Model.[4] A summary of this model is listed in Table 1.

The above listed models differ more in their historical origin and terminology than they do in their constructs and procedures. The skills necessary to conduct R & D research include those covered in advanced research and statistics courses as well as skill in systems technology and product development. The candidate develops his or her dissertation concept during the

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[2]Deterline, W. & Branson, R. An Empirical Development Model. Palo Alto: Sound Education, Inc., 1972.

[3]Scriven, M. The methodology of evaluation. In R.W. Tyler, R.M. Gagne, & M. Scriven (Eds.), Perspectives of Curriculum Evaluation. Chicago: Rand McNally & Company, 1970.

[4]Borg, W.R., Kelley, M.L., Langer, P., & Gall, M. The Minicourse: A Microteaching Approach to Teacher Education. Beverly Hills: Macmillan Educational Services, Inc., 1970.

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TA[illegible]

Task and Time Est[illegible]s for a Typical Research and Develop[illegible]ent Process

Stages and Procedures in Development	Per cent of Development Time
Research and Data Gathering	4
1. Review literature & prepare report	
Planning	4
2. Outline objectives & specific behaviors	
Development of Preliminary Form of Product	10
3. Prepare scripts	
4. Prepare handbook & evaluation forms	
5. Prepare instructional tapes	
6. Prepare model tapes	
Preliminary Field Testing or Evaluation	7
7. Conduct preliminary field test	
8. Evaluate results	
Main Product Revision	11
9. Revise scripts	
10. Revise handbook & evaluation forms	
11. Revise instructional tapes	
12. Revise model tapes	
13. Prepare follow-up package	
Main Field Testing or Evaluation	30
14. Conduct field test	
15. Collect pre- and postcourse tapes	
16. Collect delayed postcourse tapes	
17. Evaluate main field test results	
18. Distribute & evaluate follow-up package	
Operational Product Revision	10
19. Revise course for operational field test	
20. Prepare complete package	
Operational Field Testing or Evaluation	10
21. Train operational test coordinators	
22. Conduct operational field test	
23. Evaluate operational field test results	
Final Product Revision	4
24. Make final revisions	
Report Preparation	1
25. Prepare R&D report	
Dissemination & Distribution	5
26. Disseminate course for use	
Implementation	4
27. Disseminate course in the schools	
	100%

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first year of the program, and the developmental process is started early in the second year. The R & D dissertation tends to take more time than the average dissertation because of the recycling based on empirical field testing that is a part of the product and program development models. This increase required more rigorous planning but in no case was a program extended into a third year as a result of the R & D dissertation. The applied and product orientated nature of R & D dissertation is attractive and motivating to the doctoral student. Several special education doctoral students not enrolled in the interdisciplinary program chose the model for their dissertation and it is now being used in the Department of Elementary Education as a dissertation model.

Examples of the topics covered by R & D dissertations are listed in the Research and Training papers available from the project (see page 15 for a listing of the papers that are available).

The model has been discussed with colleagues at the University of Oregon, Pennsylvania State University, and Western Michigan University. Oregon and Pennsylvania State are using an R & D model and Western Michigan is contemplating incorporating the model in their developing doctoral program. There appears to be a growing concern that many dissertation experiences are not as relevant to later work experience as they might be, and in some cases the dissertation experience is responsible for reducing the interest of the candidate in research. The R & D dissertation appears to be a viable model for the candidate who wishes to do

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applied research and yet practice the research skills taught in advanced courses in research and statistics.

Product Dissemination

As a service to school districts, community agencies, and other universities the project makes copies of validated products available for the cost of reproduction. Validated products presently available include:

(1) Audio-Tutorial Math Program

Addition	6 tapes @ $1 each & $1 for printed materials	$ 7
Subtraction	5 " " " " " " "	6
Multiplication	7 " " " " " " "	8
Division	7 " " " " " " "	8
	Total for set	$29

(2) Audio-Tutorial Spelling Program

Level A (G. 2)	6 tapes @ $1 each & $1 for printed materials	$ 7
Level B (G. 3)	7 " " " " " " "	8
Level C (G. 4)	7 " " " " " " "	8
Level D (G. 5)	7 " " " " " " "	8
Level E (G. 6)	7 " " " " " " "	8
	Total for set	$39

(3) Parent Packages in Math Combinations

$1 each for addition, subtraction, multiplication, and division

Total for set of 4 $4.00

(4) Parent Training Program

Slide duplication	$128
Slide trays	22
Participant materials (for ten) and monitor's manual	35
Audio tapes (tapes and duplication)	10
Mailing	5
Total	$200

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There are three products in the final stages of validation. They are:

(1) Diagnostic Monitoring Program in Mathematics for Grades 1 and 2.

(2) Monitoring and Treatment Program in Reading.

(3) Mediated Program on the Syndromes of Mental Retardation.

Research and Training Papers

The following information releases are available from the project (single copies are free).

Research Paper #1

Title: Development and Validation of a Mediated Package for Training Parents of Preschool Mentally Retarded Children.

Authors: Alan Hofmeister and Glenn Latham.

Abstract: The development and content of the mediated package are presented. Curriculum problems are discussed and the results of the summative evaluation are summarized.

Research Paper #2

Title: Audio-Tutorial Programming with Exceptional Children.

Author: Alan Hofmeister.

Abstract: The findings from the application of audio-tutorial (A-T) programming in three curriculum areas with three groups of exceptional children are reported. The findings suggest that A-T programming has qualities capable of meeting some of the instructional needs of exceptional children.

Research Paper #3

Title: Two Approaches to Handwriting Instruction.

Author: Kathleen Stewart.

Abstract: The results of a study which compared a task analysis and a diagnostic-remedial approach for remediating cursive handwriting are presented. The task-analysis approach resulted in higher scores on the measure of handwriting used.

Research Paper #4

Title: Effects of Minicourse Instruction on Teacher Performance and Pupil Achievement.

Authors: Joseph J. Stowitschek and Alan M. Hofmeister.

Abstract: An account of a project which evaluated a mediated teacher training package in mathematics tutoring techniques with special education teachers is presented. Effects of Minicourse 5 instruction on teacher behavior and on pupil achievement are reported.

Research Paper #5

Title: Management of Problem Behavior Through Peer Social Reinforcement.

Authors: Hyrum S. Henderson and Nancy E. Bingell.

Abstract: Ten intermediate grade children were trained in modeling and socially reinforcing appropriate classroom behavior of peers with behavior problems. Four behavior problem children were transferred into the class, one at a time, at approximately three week intervals. Unacceptable behaviors showed significant drops in rate of occurrence following transfer.

Training Paper #1

Title: Packages for Parent Involvement.

Authors: Alan Hofmeister and H. Kenton Reavis.

Abstract: Guidelines for the development of packages to involve parents in remedial programs for their children are presented. Suggestions are given for curriculum selection, diagnosis, package structure, and validation procedures.

Training Paper #2

Title: Programmed Instruction Revisited: Implications for Educating the Retarded.

Author: Alan Hofmeister.

Abstract: Recent trends in programmed instruction are discussed in relation to some of the persistent problems in education of the retarded. Programed instruction is treated as a process in which behavioral objectives are developed and validated. Implications are suggested for the systematic development of programs for the retarded.

Training Paper #3

Title: Treatment of Severe Handwriting Problems.

Author: Alan Hofmeister.

Abstract: Several instructional errors made in the remediation of handwriting are identified. A simple direct method (a progressive approximation approach) is presented. This method has been successfully field tested with retarded and learning disabled children.

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Training Paper #4

Title: Integrating Criterion Testing and Instruction.

Author: Alan Hofmeister.

Abstract: Procedures for integrating criterion referenced testing into the every day instruction activities of class are discussed. Reference is made to test formats and specific management and programming techniques that could be used to complement the type data supplied by criterion referenced testing.

Research Papers 1, 2, and 3 and Training Papers 1, 2, and 3 are available in a single volume entitled Instructional Technology and Special Education Problems.

Project Progress Reports

The various reports listed on pages 1 and 2 are also available for the cost of reproduction.

All requests and purchase orders concerned with the previously mentioned products, papers, or reports should be addressed to:

Project Director
Special Education Instructional Technology Project
Exceptional Child Center, UMC-68
Utah State University
Logan, Utah 84322

Published Reports

Most of the research and training reports have been accepted for

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publication in nationally distributed publications. The following have been accepted for publication:

Hofmeister, A.M. Programmed instruction revisited: Implications for educating the retarded. Education and Training of the Mentally Retarded, 1971.

Hofmeister, A.M. & Latham, G. Development and validation of a mediated package for training parents of preschool mentally retarded children. Improving Human Performance: A Research Quarterly, 1972, Vol. 1, pp. 3-7.

Hofmeister, A.M. & Reavis, H.K. Packages for parent involvement. Educational Technology Magazine, (in press) 1973.

Hofmeister, A.M. Audio-tutorial programming with exceptional children. Educational Technology Magazine, 1973, Vol. 23, No. 12, pp. 50-52.

Hofmeister, A.M. Treatment of severe handwriting problems. Teaching Exceptional Children, 1973, Vol. 6, No. 1, pp. 30-33.

Latham, G. & Hofmeister, A.M. A mediated training program for parents of the preschool mentally retarded. Exceptional Children, 1973, Vol. 39, 472-473.

Stowitschek, J.J. & Hofmeister, A.M. Effects of minicourse instruction on teacher performance and pupil achievement. Exceptional Children, (in press) 1974.

Description of Facilities

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Materials Production

The materials production room (Room 152) is the hub of the project facilities. It contains desks for two secretaries, collating facilities, cassette tape duplication and dubbing equipment, copy stand, and work tables. Located adjoining the materials production room is a steel store room (Room 152A) and the project director's office (Room 153).

College Teaching Lab

The college teaching lab consists of two components, a classroom (Room 151) and a large observation room (Room 150). The purpose of the lab is to provide a base for doctoral students to practice college teaching skills. The lab has flexible floor space as well as a range of media.

Audio-Tutorial Lab.

This lab (Room 134) contains six carrels (6) with rear projection consoles and three carrels (3) with computer terminals with video screens (cathode ray tubes). They are linked to the main campus computer and are used for student computer interaction including computer assisted instruction and computer assisted testing. The carrels with the rear screen consoles are used for individual use of mediated modules, usually slide/sound programs.

Computer Control Room

This room (Room 110c) is linked both to the terminals in the audio-tutorial lab and the main campus computer. While the terminals in the audio-tutorial

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lab are used for interaction between student and computer, the computer control room is used by doctoral students and staff for programming purposes. The room contains a sophisticated media terminal, a high speed printer, an information storage system (cassette computer tape device), a portable teletype, and a card punch.

Mini Computer Room

The mini computer (PDP8) is housed in Room 121. This computer is used monthly for research and as a training tool in elementary forms of computer language.

Doctoral Student Accommodation

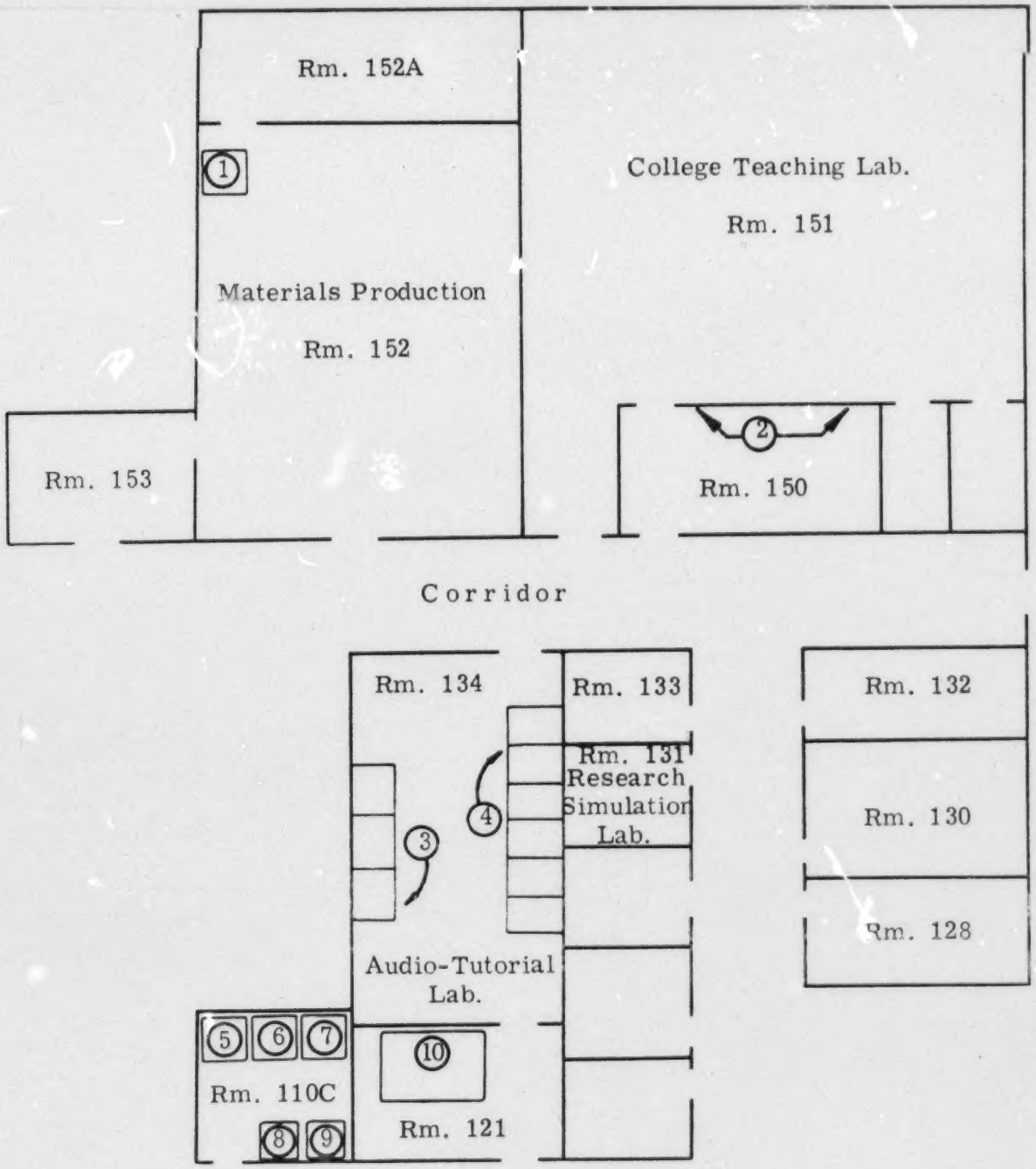
The doctoral students are housed in Rooms 132, 130, 128, and 133. The rooms are fitted with telephones, books, and file cabinets.

Research Simulation Lab

This lab (Room 131) was developed by the staff and students of the project. It contains a Wang 300 programmable calculation system, a research reference literary, and a set of simulation exercises. The simulations are designed to allow the doctoral student to practice skills taught in the advanced research and statistics courses. The student is provided a problem and a set of data; from this the student prepares a research report in which he does the statistics and discusses the results. This report is then checked by a supervising faculty member.

Figure 2

PHYSICAL FACILITIES
SPECIAL EDUCATION INSTRUCTIONAL TECHNOLOGY PROJECT



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Equipment List

Slide Projectors: Kodak Ektagraphic Model AF2 (6); Kodak Carousel 860's (2)

Filmstrip Projector: Bell and Howell Auto Load Filmstrip Projector (1)

Television Monitor: 17 inch black and white television monitor, General Electric (2)

Video recorder: Sony, Model Video Rover half inch (1)

16 mm Projector: Kodak Pageant (1)

Strip Printer: Reynolds (1)

Multi Image Programmer: Wollensak Model DIGI CUE 6-channel programmer (1)

Cassette Tape Recorders with Slide Synchronization: Wollensak Model AV2550 (3)

Portable Cassette Recorders: Sony Model TC60 (3)

Cameras: Cannon TL single lens reflex cameras with macro lenses (2)

Movie Projectors: Bauer Super 8 (2)

Portable Movie Light: Sylvania Sun Gun (1)

Flash Gun: Bauer E160 (1)

Super 8 Silent Movie Projector: Model Kodak Ektagraphic 120 (1)

Super 8 Movie Projector: Model Kodak Supermatic 70 (1)

Tungsten Flood Lights: Model Colortran Mini Pros (4)

Copystand: 35 mm camera stand

Tripods: For super 8 and 35 mm cameras (2)

Cassette Duplicating System: Wollensak Model 2750AV (one master & three slaves)

Reel-to-reel and Cassette Stereo System: Sony Model TC 330 (1)

Overhead Projectors: Bessler (2)

Audio-Tutorial Carrels: Model Howe Carrels with Rear View Consoles and power supply outlets (6)

Programmable Calculation System: WANG 300 series with three keyboards, one programmer, and one printer

CRT Computer Terminals: Beehive 3AE polled (3); Beehive Superbee (1)

High Speed Printer: Centronics 320

Cassette Computer Tape Drive: Techtran 1500

Portable Teletype: Portacom

Mini Computer: Digital Equipment Corporation PDP/8L (2)

APPENDIX A

(1) Required Special Education Courses

(2) Instructional Media and Systems Theory Courses

(3) Computer Science Courses

(4) Programmed Learning and Learning Theory Courses

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Special Education Requirements

The following listing contains the core requirements for all Special Education doctoral students. The listing does not include the courses the candidate would take in the area of emphasis. The first three courses (SP ED 301, SP ED 302, and SP ED 303) are usually taken as a part of the master's or undergraduate program.

SP ED 301. Education of Exceptional Children. Characteristics of all types of exceptional children with emphasis on the educational and psychological implications of these conditions to the development of the child. (3 hrs.)

SP ED 302. Diagnosis and Treatment of Learning Difficulties. Emphasis upon developmental and corrective measures in basic educational skills in the typical classroom. (3 hrs.)

SP ED 303. Behavior Management in Special Education. Immediate methods and techniques for modifying problem behavior of children. Identification and recording techniques with field experiences. (3 hrs.)

SP ED 602. Diagnostic Programming of Instruction. Approach to curriculum in which diagnosis and instruction are welded as a unit into the regular teaching procedures. (3 hrs.)

SP ED 697. Research and Thesis Writing. (18 hrs.)

SP ED 781. Research Seminar in Special Education. Research critiques, independent research project reports, departmental research focus, interaction of graduate students with senior staff members, and research methodology. (6 hrs.)

ED AD 667. Research in Psychology and Education. Deals with identifying a problem for the thesis, reviewing and evaluating research and literature, and designing and carrying out the research project. An area of research interest should be identified before enrolling in the course. (3 hrs.)

PSYCH 380. Statistical Methods. Elementary study of statistical procedures in handling test scores and other data, and of the concepts needed to read current educational and psychological literature. (3 hrs.)

PSYCH 680. Statistical Methods and Designs. Analysis of variance and covariance, varied correlation techniques, partial and multiple correlation, and non-parametric methods. (3 hrs.)

Instructional Media and System Theory Courses

The requirement for this area is 15 hrs. The usual selection of courses is IM 551, IM 553, IM 590, IM 665, and either IM 652 or SP 587. The content of the above listed courses is as follows:

IM 551. Production of Instructional Materials. Acquaints those in the educational field with the possibilities of creating instructional materials to meet their own professional needs. Teaches basic techniques for the production of a wide variety of both opaque and transparent visuals for display, study, and projection purposes. (3 hrs.)

IM 553. Principles of Graphic Communication. The third in a sequence of learning materials production courses which build upon the basic areas of production utilizing principles of message design and communication theory. Learning materials will be created through laboratory exploration in the creative design and development of opaque and transparent visual imagery. (3 hrs.)

IM 590. Independent Study: Principles and Practice of Instructional Technology. The student works through an individualized training package. This package involves the use of audio tapes, reference books, filmstrips, and a student workbook. The areas covered include components of objectives, classification of objectives, criterion tests, determining entry level, content analysis, chaining of behaviors, programmed lesson plans, instructional media and validation. The basic frame of reference for this course is the systems approach to the engineering of instruction. (3 hrs.)

IM 665. Systems Analysis in Education. This course considers General Systems Theory as it may be applied to the design of instruction which can be described as a process composed of an orderly series of steps, based on research findings, psychological theory and common reasoning. (3 hrs.)

IM 652. Educational Motion Picture Production. A laboratory course designed to develop individual skills in communicating with moving images. Involves the practical application of motion picture technology in the production of systematically designed learning-oriented messages. (3 hrs.)

SP 587. Educational TV and Radio. Principles and methods in development and production of radio and television materials for educational uses. Methods for effective classroom utilization of audio and visual materials and programs. (3 hrs.)

Computer Science Courses

The requirement in this area is 9 hours, and candidates have to take a minimum of 3 hours in a computer language and a minimum of 3 hours in independent study in field applications of computer technology to special education problems. The two most popular combinations of courses are as follows: CS 340 (3 hrs.) and CS 595 (6 hrs.) or CS 150 (3 hrs.), CS 340 (3 hrs.) and CS 595 (3 hrs.).

CS 150. Introduction to Computer Science. Methods of collecting and processing information. Manual and automated data collection systems. The use of digital computers in data processing and scientific computing. The structure and usage of computer based languages. History and philosophy of computing. (3 hrs.)

CS 340. Computer Programming (FORTRAN). The use of a problem-oriented programming language in solving problems by means of a computer. (3 hrs.)

CS 595. Independent Study. Provides for independent study of selected topics. (3-6 hrs.)

Programmed Learning and Learning Theory Courses

Most students enter the program with a course in learning theory similar to PSYCH 666 listed below. The minimum requirement in the area is 6 hours.

PSYCH 666. Principles of Learning. A study of learning theory and of experiments in psychology and education for the purpose of developing a set of learning principles as a guide to creating conditions for effective learning to both elementary and secondary schools. (3 hrs.)

PSYCH 568. Techniques of Programmed Instruction. Analysis of program efficiently based on a study of curricular sequence. Review of research and laboratory work on styles of program construction. (3 hrs.)

APPENDIX B

Examples of flyers used in the national advertizing of the interdisciplinary program.

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DOCTORAL FELLOWSHIPS
SPECIAL EDUCATION
INSTRUCTIONAL TECHNOLOGY

Program purpose:

The program prepares candidates to apply instructional technology to special education problems. Candidates major in one area of special education and do a strong supporting minor in instructional technology.

Program areas:

Special Education

Candidates may emphasize:
Mental retardation
Emotional disturbance
Learning disabilities
Interrelated

Instructional Technology

Areas include:
Computer application and systems design
Instructional programming and simulation
Production of audio-visual materials
Research and Development techniques

Internship:

Field application of instructional technology to selected special education problems is a major component of the training program. All fellowship holders are required to take a leadership role in several ongoing field projects conducted by the Utah State University Special Education Instructional Technology Project.

Stipends:

$3,200 plus $600 per dependent for each academic year.
Tuition and fees are paid along with financial support for research expenses.

Eligibility:

Candidates are required to qualify for admission to the special education doctoral program, Utah State University. Major criteria for fellowship applicants are:

Master's degree or equivalent with an emphasis in special education
Acceptable letters of recommendation
A minimum of two years sucessful field experience in special education
Acceptable GRE and/or Miller's analogy scores

Contact:

Dr. Alan Hofmeister
Instructional Technology Project Director
Department of Special Education
Utah State University
Logan, Utah 84321
Phone: (801) 752-4100 ext. 7781

Applications close:

April 14, 1972

UTAH STATE UNIVERSITY

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DOCTORAL ASSISTANTSHIPS

INTERDISCIPLINARY PROGRAM

SPECIAL EDUCATION – INSTRUCTIONAL TECHNOLOGY

Program purpose: The program prepares candidates to apply instructional technology to special education problems. Candidates major in one area of special education and do a strong supporting minor in instructional technology.

Program areas:

Special Education
- Candidates may emphasize
- Mental retardation
- Emotional disturbance
- Learning disabilities
- Interrelated

Instructional Technology
- Areas include
- Computer application and systems design
- Production of audio-visual materials
- Research and development techniques

Internship: Field application of instructional technology to selected special education problems is a major component of the training program. Candidates are required to take a leadership role in several ongoing field projects conducted by the Utah State University Special Education Instructional Technology Project.

Assistantships: $3,200 to $4,200 depending on nature and extent of assistantship duties.

Eligibility: Candidates are required to qualify for admission to the special education doctoral program, Utah State University. Major criteria for admission are
- Master's degree or equivalent with an emphasis in special education
- Acceptable letters of recommendation
- A minimum of two years successful field experience in special education
- Acceptable GRE and/or Miller's Analogy scores

Contact:
Dr. Alan Hofmeister
Instructional Technology Project Director
Exceptional Child Center
Utah State University
Logan, Utah 84322
Phone: (801) 752-4100 ext. 7753

Applications close: March 15, 1974

UTAH STATE UNIVERSITY

– Equal Opportunity Employer –